

**Meeting of the Central Valley Flood Protection Board
August 26, 2010**

Staff Report – Encroachment Permit

**City of Modesto
Carpenter Road Bridge Seismic Retrofit Project, Stanislaus County**

1.0 – ITEM

Consider approval of Permit No. 18582 (see Attachment B).

2.0 – APPLICANT

City of Modesto

3.0 – LOCATION

The project is located in Modesto along Carpenter Road.
(Tuolumne River, Stanislaus County, see Attachment A).

4.0 – DESCRIPTION

The project involves a seismic retrofit to the existing Carpenter Road Bridge over the Tuolumne River by adding longitudinal link beams to either side. The bridge will be widened from 33.5 to 69.75-feet and twelve 84-inch-diameter (cast in drilled hole) piles will be added to bents 2, 3 and 4. Fill will be added to both abutments and additional rock revetment will be added to the southern abutment. Vegetation will be planted on 0.19-acre within the Tuolumne River Designated Floodway to mitigate for project impacts.

5.0 – PROJECT ANALYSIS

Carpenter Road crosses the Tuolumne River approximately 2.5 miles downstream from SR-99, in the southwest portion of the City of Modesto. The existing Carpenter Road Bridge was built in 1960 and is constructed of concrete materials. It currently accommodates two lanes of traffic (one in each direction). In 1996 the bridge was identified as having seismic deficiencies.

The proposed project will strengthen the bridge by adding longitudinal link beams to either side that will widen the bridge from 33.5 to 69.75-feet. An additional 12 pilings will be required to support the link beams over the river channel. Sheet pile cofferdams

will be constructed to allow for dewatering the work area and installation of the piles. Earthen fill will be placed at both abutments to provide seismic resistance. At the southern abutment, the embankment down to the river will be protected with articulated concrete revetment.

Temporary trestles will be constructed adjacent to the existing bridge to serve as work platforms. The trestles will be constructed of steel and timber and will be supported by steel piles driven into the river bottom. The temporary steel piles will be removed prior to the 2011 flood season. Construction is expected to take 12 months to complete this project.

Following construction the project area will be hydro seeded with a bioswale seed mix to prevent erosion. Mitigation plantings will consist of 18 trees and 18 shrubs. The City of Modesto, or its designated contractor, will be responsible for maintenance and irrigation of the replaced vegetation for no less than 18 months after the completion of construction to ensure an adequate survival rate.

5.1 – Hydraulic Analysis

A 6.5-mile section of the FEMA Hec-Ras model for the Tuolumne River was used to evaluate the hydraulic impacts of the Carpenter Road Bridge retrofit project. Water surface profiles were developed for the 50-year flood, 100-year flood, overtopping flood, and the flood of record for the project reach. Flows for the 50-year event and 100-year event were set at 32,000 and 70,000 cubic-feet-per-second (cfs) respectively. The 100-year design flow that was adopted for the Tuolumne River Designated Floodway is 44,000 cfs. The Tuolumne River Designated Floodway was adopted by the Board in 1975.

The proposed bridge was modeled by changing the existing bridge configuration to include the proposed retrofit measures. The proposed bridge length and the low chord elevations are the same as the existing bridge. Pier width was increased to five feet and one foot of debris was added to either side of the pier walls to account for debris loading.

As with the existing bridge, the proposed bridge provides a minimum of three feet of freeboard for the 50-year flow. The 100-year flow water surface elevation (wse) is 65.34-feet (NGVD 29), which is 0.34 feet above the minimum elevation of the low chord of the bridge.

Water surface elevations for existing and proposed conditions were compared to evaluate the hydraulic impacts from the project. At the 50-year flow the proposed bridge retrofit project will result in a maximum wse increase of 0.01-feet. At the 100-year flow the proposed project will result in a maximum wse increase of 0.02-feet. These increases are isolated to the cross section that is approximately 10-feet upstream of the bridge. As a mitigation measure to these wse increases articulated concrete block will be used in place of the rock riprap at the south abutment due to its lower

roughness factor. Water surface increases were insignificant when the hydraulic model was run using the lower roughness factor for the articulated concrete block.

5.2 – Geotechnical Analysis

A geotechnical analysis was performed in 1996 that identified a liquefaction potential at the bridge site. The proposed retrofit improvements to the Carpenter Road Bridge will reduce the seismic risk to the structure.

5.3 – Additional Staff Analysis

A protest letter was received from an adjacent landowner to the project alleging that the project would increase flooding and erosion potential to their land (see Attachment C). The City of Modesto met with the landowner and proposed drainage and slope protection changes to address the landowners concerns. By signature the protestant concurred with the slope and drainage improvements proposed by the City (see Attachment D).

6.0 – AGENCY COMMENTS AND ENDORSEMENTS

The comments and endorsements associated with this project, from all pertinent agencies are shown below:

- The proposed project is located inside of the Tuolumne River Designated Floodway therefore no 208.10 comment letter is required from the U.S. Army Corps of Engineers.
- There is no local maintaining agency for the project area.

7.0 – CEQA ANALYSIS

Board staff has prepared the following CEQA Findings:

The Board, as a Responsible Agency under CEQA, has reviewed Initial Study/Mitigated Negative Declaration (IS/MND) and Mitigation Monitoring and Reporting Plan (SCH Number: 2009122028, February 2010) for the Carpenter Road Bridge Seismic Retrofit Project, prepared by the lead agency, the City of Modesto. These documents, including project design, may be viewed or downloaded from the Central Valley Flood Protection Board website at <http://www.cvfpb.ca.gov/meetings/2010/8-26-2010agenda.cfm> under a link for this agenda item. The documents are also available for review in hard copy at the Board and City of Modesto offices.

The City of Modesto determined that the project would not have a significant effect on the environment and adopted the Initial Study/Mitigated Negative Declaration and Mitigation Monitoring and Reporting Plan with Resolution 2010-087 at the Modesto

Council Meeting on March 9, 2010. Subsequently, the City of Modesto filed a Notice of Determination with the State Clearinghouse and Sacramento County Clerk on March 10, 2010. Board staff finds that although the proposed project could have a potentially significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. The project proponent has incorporated mandatory mitigation measures into the project plans to avoid identified impacts or to mitigate such impacts to a point where no significant impacts will occur. These mitigation measures are included in the project proponent's Mitigation Monitoring and Reporting Plan and address impacts to air quality, cultural resources, biological resources, flooding and water quality, hazardous materials, noise and traffic. The description of the mitigation measures are further described in the adopted Mitigation Monitoring and Reporting Plan.

8.0 – SECTION 8610.5 CONSIDERATIONS

1. Evidence that the Board admits into its record from any party, State or local public agency, or nongovernmental organization with expertise in flood or flood plain management:

The Board will make its decision based on the evidence in the permit application and attachments, this staff report, and any other evidence presented by any individual or group.

2. The best available science that related to the scientific issues presented by the executive officer, legal counsel, the Department or other parties that raise credible scientific issues.

The accepted industry standards for the work proposed under this permit as regulated by Title 23 have been applied to the review of this permit.

3. Effects of the decision on the entire State Plan of Flood Control:

The Carpenter Road Bridge is an existing structure and the proposed retrofit project will have no impacts on the State Plan of Flood Control.

4. Effects of reasonable projected future events, including, but not limited to, changes in hydrology, climate, and development within the applicable watershed:

Effects from future events that increase flows in the Tuolumne River may require that the bridge be reconstructed to accommodate larger flows.

9.0 – STAFF RECOMMENDATION

Staff recommends that the Board adopt the CEQA findings, approve the permit, and direct staff to file a Notice of Determination with the State Clearinghouse.

10.0 – LIST OF ATTACHMENTS

- A. Location Maps and Photos
- B. Draft Permit No. 18582
- C. Protest letter from adjacent landowner
- D. City of Modesto proposed mitigation to protest

Design Review:	Gary Lemon P.E.
Environmental Review:	James Herota
Document Review:	Len Marino P.E.

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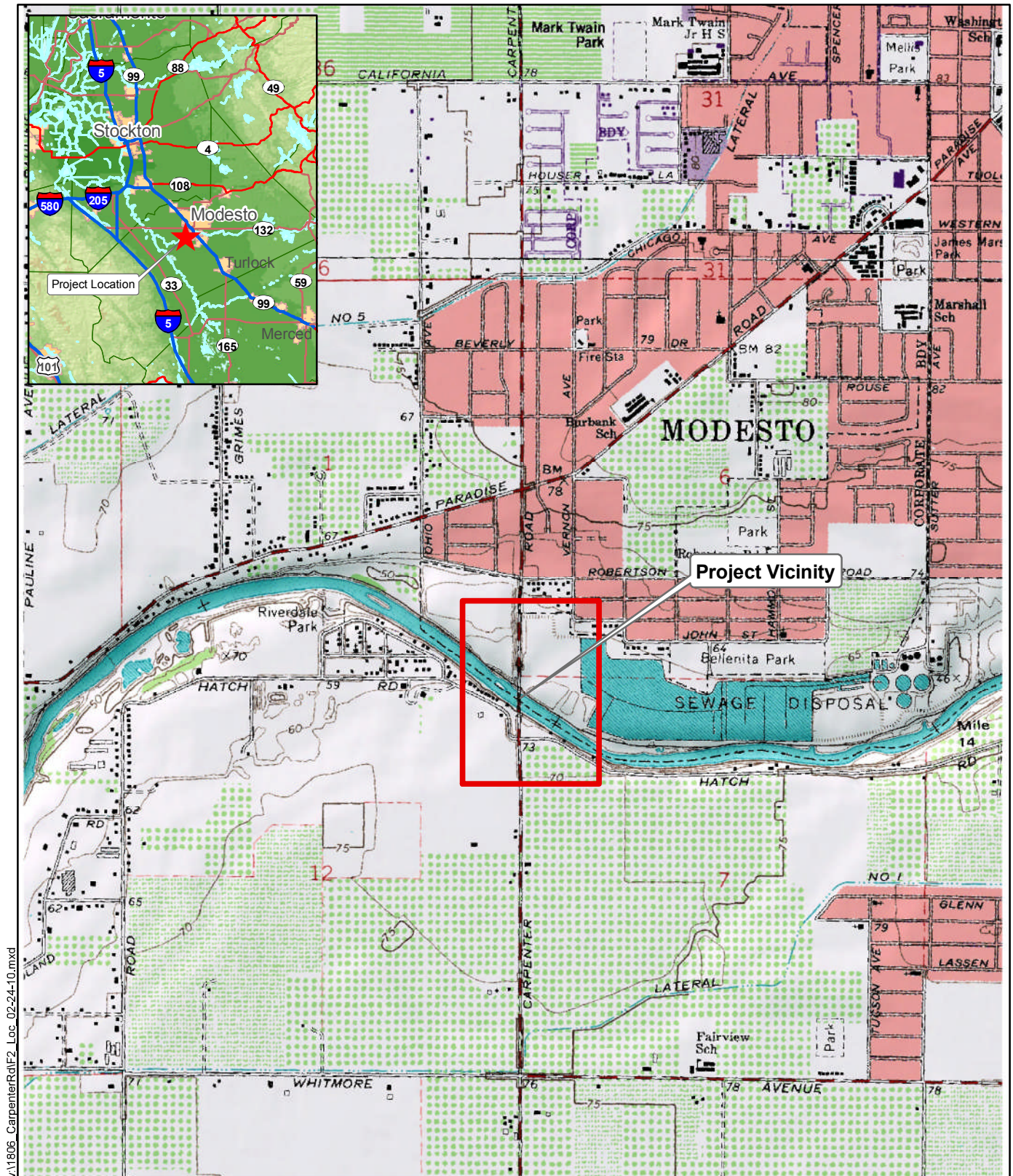


FIGURE 2
PROJECT LOCATION

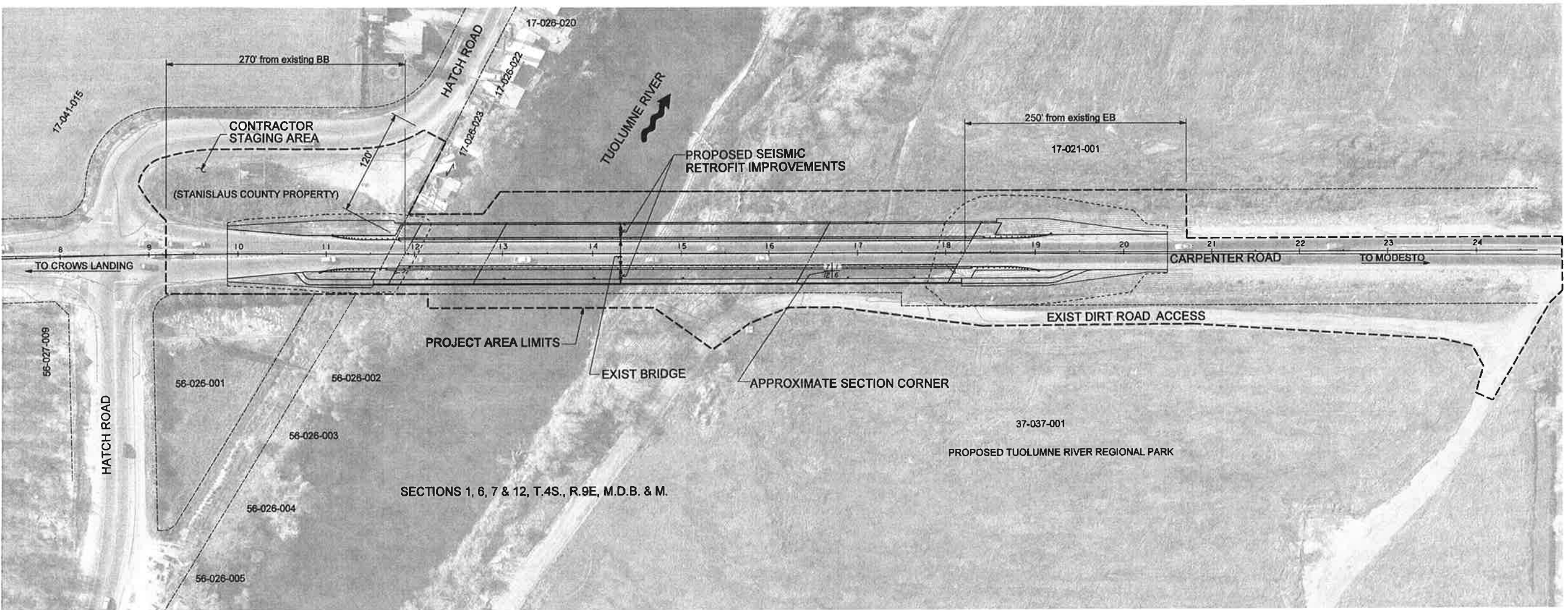
10-STA-Carpenter Road - Modesto
BRLSZA-5059(064)

Bridge No. 38C-0050

Carpenter Road Bridge Seismic Retrofit Project
Modesto, Stanislaus County, California



0 0.25 0.5 0.75 1
Miles



Legend

- | | |
|---|--|
| --- AREA OF POTENTIAL EFFECTS Boundary | T.C.E. TEMPORARY CONSTRUCTION EASEMENT |
| - - - - - Exist R/W (ADDITIONAL R/W NOT REQUIRED) | BB BEGINNING OF BRIDGE |
| ----- Proposed Fill Limits | EB END OF BRIDGE |

Carpenter Road Bridge Seismic Retrofit Project

Attachment A



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DRAFT

STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18582 BD

This Permit is issued to:

City of Modesto
1010 10th Street, Suite 4600
Modesto, California 95354

To retrofit the existing Carpenter Road Bridge over the Tuolumne River by adding longitudinal link beams to either side, increasing the width of the bridge from 33.5 to 69.75-feet; add twelve 84-inch-diameter (cast in drilled hole) piles to bents 2, 3 and 4; add earthen fill to both abutments, add rock revetment to the southern abutment, and plant mitigation vegetation on 0.19-acre within the Tuolumne River Designated Floodway. The project is located in Modesto along Carpenter Road (Section 1,6,7&12, T4S, R9E, MDB&M, Designated Floodway - Tuolumne River, Tuolumne River, Stanislaus County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: _____

Executive Officer

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to

change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection Board.

SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15 days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 18582 BD

THIRTEEN: All work approved by this permit shall be in accordance with the submitted drawings and specifications except as modified by special permit conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval of the Central Valley Flood Protection Board.

FOURTEEN: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California; including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

FIFTEEN: The Central Valley Flood Protection Board and the Department of Water Resources shall not be held liable for damages to the permitted encroachment(s) resulting from releases of water from reservoirs, flood fight, operation, maintenance, inspection, or emergency repair.

SIXTEEN: The permittee shall contact the Department of Water Resources by telephone, (916) 574-0609, and submit the enclosed postcard to schedule a preconstruction conference. Failure to do so at least 10 working days prior to start of work may result in delay of the project.

SEVENTEEN: No construction work of any kind shall be done during the flood season from November 1st to July 15th without prior approval of the Central Valley Flood Protection Board.

EIGHTEEN: Prior to start of any demolition and/or construction activities within the Tuolumne River

Designated Floodway, the City of Modesto shall provide the Central Valley Flood Protection Board with two sets of layout plans for any and all temporary in channel cofferdam(s), gravel work pad(s), work trestles(s), scaffolding, piles and/or other appurtenances that are to remain within the floodway during the flood season from November 1st through July 15th.

NINETEEN: Cleared trees and brush shall be completely burned or removed from the Tuolumne River Designated Floodway, and downed trees or brush shall not remain in the floodway during the flood season from November 1st to July 15th.

TWENTY: The soffit of the widened portion of the bridge shall be no lower than that of the soffit for the existing bridge.

TWENTY-ONE: Fill material shall be placed only within the area indicated on the approved plans.

TWENTY-TWO: Bridge piers and bents placed within the floodway to support a widened portion of an existing bridge shall be constructed in line with the existing bents and piers.

TWENTY-THREE: Temporary staging, formwork, stockpiled material, equipment, and temporary buildings shall not remain in the floodway during the flood season from November 1st to July 15th.

TWENTY-FOUR: Backfill material for excavations shall be placed in 4- to 6-inch layers and compacted to at least the density of the adjacent, firm, undisturbed material.

TWENTY-FIVE: Backfill material for excavations within 10 feet of bridge supports within the floodway shall be placed in 4- to 6-inch layers and compacted to a minimum of 90 percent relative compaction per ASTM Method D1557-91 and above optimum moisture content.

TWENTY-SIX: Density tests by a certified materials laboratory will be required to verify compaction of backfill within the Tuolumne River Designated Floodway.

TWENTY-SEVEN: Piers, bents, and abutments being dismantled shall be removed to at least 1 foot below the natural ground line and at least 3 feet below the bottom of the low-water channel.

TWENTY-EIGHT: Drainage from the bridge or highway shall not be discharged onto the streambank.

TWENTY-NINE: Rock revetment shall be uniformly placed and properly transitioned into the bank and in a manner which avoids segregation.

THIRTY: Rock revetment shall be quarry stone and shall meet the following grading:

Quarry Stone

Stone Size	Percent Passing
15 inches;	100
8 inches;	80-95
6 inches;	45-80
4 inches;	15-45

2 inches;

0-15

THIRTY-ONE: The rock revetment shall not contain any reinforcing steel, floatable, or objectionable material. Asphalt or other petroleum-based products may not be used as fill or erosion protection on the levee section or within the Tuolumne River Designated Floodway.

THIRTY-TWO: The recommended minimum thickness of revetment, measured perpendicular to the bank or levee slope, is 18 inches below the usual water surface and 12 inches above the usual water surface.

THIRTY-THREE: All debris generated by this project shall be disposed of outside the Tuolumne River Designated Floodway.

THIRTY-FOUR: The work area shall be restored to the condition that existed prior to start of work.

THIRTY-FIVE: The permittee shall submit as-built drawings to the Department of Water Resources' Flood Project Inspection Section upon completion of the project.

THIRTY-SIX: Trees, brush, sediment, and other debris shall be kept cleared from the bridge site and disposed of outside the floodway to maintain the design flow capacity and flowage area.

THIRTY-SEVEN: If erosion occurs adjacent to the permitted encroachment(s), the permittee shall repair the eroded areas and place adequate revetment on the affected areas to prevent further erosion.

THIRTY-EIGHT: In the event that levee or bank erosion injurious to the adopted plan of flood control occurs at or adjacent to the permitted encroachment(s), the permittee shall repair the eroded area and propose measures, to be approved by the Central Valley Flood Protection Board, to prevent further erosion.

THIRTY-NINE: The permittee shall maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of the Department of Water Resources or any other agency responsible for maintenance.

FORTY: If the bridge is damaged to the extent that it may impair the channel or floodway capacity, it shall be repaired or removed prior to the next flood season.

FORTY-ONE: The permitted encroachment(s) shall not interfere with operation and maintenance of the flood control project. If the permitted encroachment(s) are determined by any agency responsible for operation or maintenance of the flood control project to interfere, the permittee shall be required, at permittee's cost and expense, to modify or remove the permitted encroachment(s) under direction of the Central Valley Flood Protection Board or Department of Water Resources. If the permittee does not comply, the Central Valley Flood Protection Board may modify or remove the encroachment(s) at the permittee's expense.

FORTY-TWO: The permittee may be required, at permittee's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted encroachment(s) if removal, alteration,

relocation, or reconstruction is necessary as part of or in conjunction with any present or future flood control plan or project or if damaged by any cause. If the permittee does not comply, the Central Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

FORTY-THREE: If the project, or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project under direction of the Central Valley Flood Protection Board and Department of Water Resources, at the permittee's or successor's cost and expense.

FORTY-FOUR: The permittee shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages related to the Central Valley Flood Protection Board's approval of this permit, including but not limited to claims filed pursuant to the California Environmental Quality Act. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

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April 9th 2010

Central Valley Flood Protection Board
3310 El Camino Ave. Rm LL40
Sacramento CA 95821

Subject Line: **PROTEST** ~ Application # 18582 BD

Attention – Jon Yego

Dear Sir,

Please accept this letter as my official protest to the expansion of the Carpenter Rd. bridge based on flood concerns. In 1996 this parcel was flooded. The water washed away several feet of the hillside and undermined several hundred feet additionally of this property. Nothing has ever been done to restore this. The addition to the bridge and additional rock that will be added there will only add to this problem. Currently there is no professional drainage from the top by the bridge. In blocking this without the addition of a constructed spill way, the water will have no where to go unless it is to wash down my property to make it to the river. This will additionally erode the dirt that is still there. The dirt that already washed down has in turn made this part of the river very shallow, decreasing the ability to hold more water.

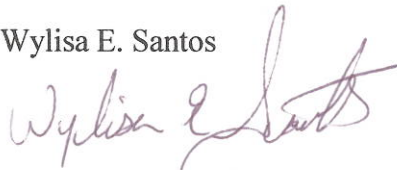
Also, with the addition of rock East of my property it will only serve as an additional block for the water which will then fill into the dirt West onto my property allowing for more erosion of the dirt and the undermining of my retaining walls. I have already tried to get in touch with the Dept of Fish and Game regarding river restoration. To this date, no one has returned my calls.

Rock needs to be added to the base of the bridge, in addition to east and west of the bridge on the river for apprx. 1000 ft. in each direction. The river is starting to fill in that area with sandy loam being washed down from the top.

I have no problems with the expansion of the bridge if these two matters are addressed. I would very much like to participate in the hearings on this subject.

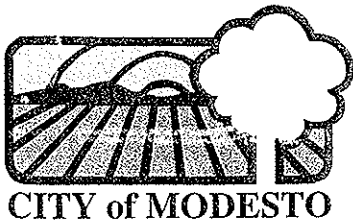
Sincerely

Wylisa E. Santos



2313 W. Hatch Rd.
Modesto CA 95358
(209) 538-3575

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July 9, 2010

*Public Works
Department*

*Capital
Improvement
Services
1010 Tenth Street
Suite 4600
P.O. Box 642
Modesto, CA 95353*

*Capital
Planning
209/577-5215
209/522-1780 Fax*

*Construction
Administration
209/577-5452
209/577-4202 Fax*

*Engineering
Design
209/577-5215
209/522-1780 Fax*

*Hearing and Speech
Impaired Only
TDD 1-800-735-2929*

Ms. Wylisa E. Santos
2313 W. Hatch Road
Modesto, CA 95358

Dear Ms. Santos:

Thank you for meeting with Matt Griggs and me on June 29th to discuss your property adjacent to the Carpenter Road Bridge Seismic Retrofit project over the Tuolumne River.

Per our conversations at your residence, we have revised several drainage and slope protection details. The purpose of these revisions is to improve the river transition from the slope under the bridge protected by articulated concrete block to the unprotected slopes of your property. To improve the hydraulic transition we propose the following improvements highlighted and labeled on the attached plan sheets:

- 1) Extend the articulated concrete slope protection 10 feet west of the bridge.
- 2) Place rock slope protection on the bottom 12 feet of your slope along the river for 50 feet beyond the articulated block. Placement of this rock should enhance the stability of your slope.
- 3) Grade the Stanislaus County property to drain toward a new field inlet near the existing PG&E gas equipment. This will not drain the entire County parcel, but will drain the areas within 40 feet of your property and ensure no runoff is entering your property from the County open space or contributing to the erosion of your slopes.
- 4) Install a new drainage system with an inlet near the southwest corner of your property. The inlet will drain to the river through underground piping to be buried under the new articulated concrete block. The new drain and piping will outlet to the river near the bottom of the slope.
- 5) Place jagged rock slope protection boulders under the bridge abutment and grout them in place to make the bridge less accommodating to transients.

Please consider this letter a commitment from the City of Modesto to include these elements in the proposed project construction. We have attached plans showing the proposed features to make clear the intention and limits of these improvements. We believe these are the maximum improvements we can justify to improve the transition from the protected slope under the bridge to natural slope treatments downstream of the bridge within your property.

We hope you concur with these proposed slope and drainage improvements. If you are in agreement with these improvements, please sign the bottom of this letter and send it to Mr. Gary Lemon of the Central Valley Flood Protection Board (CVFPB) in the attached postage paid envelope that is addressed to:


Central Valley Flood Protection Board
Attn: Gary Lemon, PE
Regarding: Application #18582 BD
3310 El Camino Ave., Room 151
Sacramento, CA 95821

The CVFPB would like to place this project on the agenda for August 27th if you wish to attend the meeting.

We will be sending you a separate request to sign a "right of entry" agreement with the City to allow our contractor access to your property for the slope protections depicted on the attached plan. As one of the first construction items, we are requiring the Contractor to place temporary orange plastic fencing on your property, just beyond the work limits. This will keep the Contractors activities off the rest of your property.

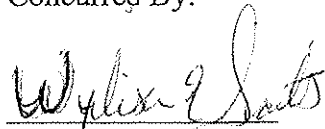
If you have any questions with what we have agreed to do or need any additional information, please call Matt Griggs at Dokken Engineering (916) 858-0642, or myself at (209) 577-5265.

Sincerely,



Steve Pace, PE
Associate Civil Engineer

Concurred By:



Wylisa E. Santos

7-28-10
Date

CC: Vickey Dion, Senior Civil Engineer, City of Modesto
David Leamon, Senior Civil Engineer, Stanislaus County
Matt Griggs, Dokken Engineering,
Gary Lemon, Central Valley Flood Protection Board

Attachment: Plans Showing Proposed Improvements